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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/027,817	12/21/2001	Hamid R. Berenji	IIS-110	9496
7590 08/24/2004				
EXAMINER				
HARTMAN JR, RONALD D				
ART UNIT		PAPER NUMBER		
2121				

DATE MAILED: 08/24/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/027,817

Applicant(s)

BERENJI ET AL.

Examiner

Ronald D Hartman Jr.

Art Unit

2121

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 03 May 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 5-7 and 13-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5-7, 13-16 and 18-20 is/are allowed.
- 6) ☒ Claim(s) 17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. Claims 1-4 and 8-12 have been canceled.
2. Claims 5-7 have been amended and claims 13-20 are newly added.
3. Claims 5-7 and 13-20 are presented for further examination.

#### ***Claim Objections***

4. Claim 16/13 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. As per claim 16/13, the system state has already been defined to be for a wireless transmitter since claim 13 recites, "control a system" then later recites, "to control a wireless transmitter" and therefore, obviously, the system and the system state of the transmitter is what is being controlled.

Claims 6, 14-15 and 18-19 are confusing and the following modification is suggested: line 2, respectively; "taking a derivative, with respect to said at least one parameter of the system, of the logarithm of a probability function, for..."

Claim 18 claims dependency to itself. It is assumed by the examiner that the claim should depend from claim 17.

#### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 17 is rejected under 35 U.S.C. 102(b) as being anticipated by Baird, III, U.S. Patent No. 5,608,843.

As per claim 17, Baird teaches a system (i.e. learning controller) that:

- utilizes a processor (inherent to the use of software) for updating equations for action and learning for controlling actuators in a system (e.g. Figure 9 and C2 L57-64), wherein instructions that when executed by a processor cause the processor to update a database of fuzzy rules using continuous reinforcement learning based on the system state so that convergence of a parameter to an optimum value may be achieved (e.g. Figure 9 and C2 L57-64 and Table 1; specifically the Advantage updating and Value iteration methods).

***Allowable Subject Matter***

6. Claims 5-7, 13-16 and 18-20 are allowed over the prior art of record.

As per claims 5-7, specifically independent claim 5, the prior art of record fails to teach or adequately suggest a method for power control of a wireless transmitter using actor-critic based fuzzy reinforcement learning, in combination with the other claimed features as claimed by the claimed invention.

As per claims 13-26, specifically independent claim 13, the prior art of record fails to teach or adequately suggest a computer medium containing instructions, that when executed, perform a method for applying actor-critic based fuzzy reinforcement learning to control a wireless transmitter, in combination with the other claimed features as claimed by the claimed invention.

7. Claims 18-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As per claims 18-19, specifically claim 18, the prior art of record fails to a system for actor-critic learning and updating fuzzy rules wherein the updating of the rules comprises taking a derivative, with respect to said at least one parameter of the system, of the logarithm of a probability function, for...", in combination with the other claimed features and or limitations. It is noted that Baird teaches taking derivatives with respect

to time (e.g. C14 L9-38), but Baird does not specifically teach taking the derivative of the logarithm of a probability function, in combination with the other claimed features and or limitations as claimed by the claimed invention.

As per claim 20, the prior art of record fails to teach or adequately suggest a computer medium containing instructions, that when executed, perform a method for applying actor-critic based fuzzy reinforcement learning to control a wireless transmitter, in combination with the other claimed features as claimed by the claimed invention.

### ***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight can be reached on 703-308-3179. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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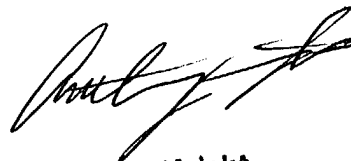
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ronald D Hartman Jr.

Examiner

Art Unit 2121

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Anthony Knight  
Supervisory Patent Examiner  
Group 3600